

“GET A GRIP”© HANDHELD CLAMP EXTENSION ARMS

Specification

Cross – Reference to Related Applications

001 This patent application references and incorporates prior provisional application number 60/406,060, filing date August 27, 2002. The relationship of the applications is that this utility patent application is being filed by the same applicant that filed for the above referenced provisional patent, and with some modifications contained in this application, the two applications, this one and the prior provisional application are for the same invention.

Statement Regarding Federally Sponsored Research of Development

002 This section is not applicable for this application.

Reference to Sequence Listing, a Table, or a Computer Program Listing Compact Disk Appendix

003 This section is not applicable for this application.

Background of the Invention

004 The field of endeavor to which this invention pertains is the field of mechanics and hand held tools. More specifically, this invention is directly related to and used with already existing Quick-Grip® hand held and/or hand operated bar clamps. Although the idea of this invention has expanded applications to other market available clamps, this invention is designed specifically for use with the hand held Quick-Grip® bar clamp. The illustrations and drawings contained in this application show that the invention is used as an add on extension arm for these Quick-Grip® bar clamps. Refer to FIG 1.

005 As referenced above in the non-provisional application in paragraph 001, this invention addresses the specific problem of the limited clamp reach that exists

with Quick-Grip® bar clamps that are already available to the consumer. The “clamp reach” is defined as the distance that a clamp allows the user to effectively clamp an object or objects away from the back bar (leading edge) of the clamp. FIG 2 shows an existing Quick-Grip® bar clamp and identifies the clamp reach for this specific clamp as 2.25 inches. The “clamp reach” by definition is measured from the leading edge of the clamp bar to the leading edge of the clamp head as shown in FIG 2.

Brief Summary of the Invention

006 The idea and purpose of this invention is to increase the limited “clamp reach” problem addressed in paragraph 006 above. The advantage of this invention is that a pair of these clamp extension arms can be added to any Quick-Grip® bar clamp head by sliding the extension arm over the existing clamp head, (refer back to FIG 1), resulting in an increase in the usable clamp reach without altering, interfering or hindering the Quick-Grip® bar clamp that the extension arms are used on.. When not in use, the extension arms are easily removed, and the original clamp remains usable and in tact. The advantages to this invention are that: a) it preserves the use and design of any Quick-Grip® bar clamp it is used on, b) it increases the limited effective clamp reach that existing Quick-Grip® bar clamps have. FIG 2 shows the clamp reach of an existing clamp as 2.25 inches, with the addition of the clamp extension arms, the clamp reach is increased to 8.00 inches as seen in FIG 1. The increase of the clamp reach to 8.00 inches is related to the length of the clamp extension arm used, which is related to the manufactured length of the extension arm (5.75 inches in this illustration) but not related to the design of the extension arm. These extension arms can be manufactured to fit different size Quick-Grip® bar clamp heads and made with different lengths to achieve longer and shorter clamp reaches.

Brief Description of the Several Views of the Drawing

- FIG 1: Drawing showing invention in use as an add-on extension arm to the hand held Quick-Grip® bar clamp.

- FIG 2: Drawing defining “clamp reach” of existing Quick-Grip® bar clamps.
- FIG 3: Drawing showing top view of invention.
- FIG 4: Drawing showing front view of invention.
- FIG 5: Drawing showing cut view of end of invention that slides over existing Quick-Grip® bar clamp heads.
- FIG 6: Drawing showing side view of Existing Quick-Grip® bar clamp head prior to sliding on to extension arm. Arrows show direction of slide.

Detailed Description of the Invention

007 The invention is an extension arm used in conjunction with existing hand held Quick-Grip® bar clamps. These clamps, that are readily available on the market, have a limited reach distance that two objects can be clamped together. (Clamp reach distance is defined in paragraph 005) This invention extends this reach distance and is used with these existing hand held Quick-Grip® bar clamps. The extension arm is designed so that the mounting slot of the extension arm shown in Reference 2 of FIG 4 slides over the rectangular clamp head of these Quick-Grip® bar clamps, see FIG 6. The extension arms slide onto the existing clamp heads from the back side of the existing clamp heads. The extension arm can be secured in place on the Quick-Grip® bar clamp head after sliding it into place with two set screws as referenced in FIG 5, Reference 4. These set screws are not essential to the operation or design of the invention and can be considered optional in the manufacturing of the invention. Without the set screws the extension arms will still operate. Once in place on an existing Quick-Grip® bar clamp as shown in FIG 1, objects being clamped together can now be clamped further away from the leading edge of the original clamp bar. The length of the extension arm is a function of manufacturing. This size of the slide mounting slot of this invention can vary in manufacturing to fit the different sizes of Quick-Grip® bar clamp heads that are already on the market.

008 The clamp head of the extension arm is designed to swivel as shown in FIG 4, Reference 3. This design gives the maximum clamp strength when using the clamp extension arms. Although maximizing the clamp strength is important, this pivoting

clamp head design feature is an optional feature of the clamp extension arms. In the manufacturing of the clamp extension arms it may prove more cost effective to make the heads of the clamp extension arms fixed and one piece. The shape of the heads of the clamp extension as seen in FIG 3, Reference 1 are shown as oval. This shape is also a variable of manufacturing; the extension arms will still function if the shape of the extension arm clamp head is rectangular, similar to the shapes of the clamp heads on the existing Quick-Grip® bar clamps that the extension arms are used in conjunction with.

009 The extension arms can be manufactured out of a variety of light weight metals through the casting type of molding. They may also be manufactured out of a strong polymer plastic through the injection molding process. The arms can be manufactured in either process as a one piece design by eliminating the optional set screws as discussed above and eliminating the pivoting clamp head as also discussed above. In the event that the pivoting clamp head and the set screws are maintained in manufacturing, assembly of the clamp extension arms would be necessary prior to distribution. The difference in manufacturing for the pivoting clamp head would require the pivot hole to be molded into both the clamp head and the clamp arm as shown in FIG 3 and FIG 4. The manufacturing addition of the set screws in the mounting slide portion of the clamp extension arm would require threading two holes into the clamp extension arms and adding the two set screws through the threaded holes. In any of the manufacturing processes discussed above, the function of the clamp extension arms remains the same.

010 This invention is different in that it is an add-on device to existing Quick-Grip® bar clamps that are already on the market. It does not alter the existing clamp in any way, and once removed, the existing clamp is back to its original state. This invention is added to the existing Quick-Grip® bar clamps by first removing any padding that is on the heads of the Quick-Grip® bar clamp. This padding slides off. Once the padding is removed, the clamp extension arms slide on to the existing bar clamp head. (FIG 6 and FIG 1) The extension arms slide from the leading edge of the bar of the Quick-Grip® bar clamp forward toward tip of the clamp head. The extension arms slide until the back stop of the extension arm is reached. Once in

place, the Quick-Grip® bar clamp can now be used normally. To remove the extension arms the above process is reversed. With this invention in place, the existing Quick-Grip® bar clamps can now grip objects at a farther distance away from the bar of the clamp without losing clamping ability.